

REMARKS

Claims 1-14 and 17-20 are pending in the above-captioned application, with all claims rejected under 35 U.S.C. §112 and 35 U.S.C. §103(a), as well as being provisionally rejected under 35 U.S.C. §101 for Double Patenting and under the doctrine of obviousness-type double patenting. Reconsideration and allowance of all claims 1-14 and 17-20 is respectfully requested.

Rejections Under 35 U.S.C. §112

As noted above, all pending claims 1-14 and 17-20 stand rejected under 35 U.S.C. §112. Although not acquiescing in the rejections made, the specific claims addressed in the Office Action have all been amended to overcome the rejections made; the rejections under 35 U.S.C. §112 should, therefore, be withdrawn.

Rejections Under 35 U.S.C. §103(a)

Claims 1 and 8 stand rejected under 35 U.S.C. §103(a) over Dettling et al. (U.S. 4,732,637) in view of Chi (U.S. 4,416,955) and/or van Ommering (U.S. 4,565,749).

Claims 2-7, 9-14 and 17-20 stand rejected under 35 U.S.C. §103(a) over Dettling et al. in view of Chi and/or van Ommering and further in view of Mercuri et al. (U.S. 6,037,074).

Claim 10 stands rejected under 35 U.S.C. §103(a) over Dettling et al. in view of Chi and/or van Ommering and Mercuri '074, and further in view of Edgington et al. (U.S. 5,589,301).

Claims 9 and 10 stand rejected under 35 U.S.C. §103(a) over Dettling et al. in view of Chi and/or van Ommering and Mercuri '074, optionally in view of Edgington et al., and further in view of Selover, Jr. et al. (U.S. 4,014,730).

Claims 1 and 8 stand rejected under 35 U.S.C. §103(a) over Dettling et al. in view of Chi and/or van Ommering and further in view of Mercuri (U.S. 6,432,336).

Claims 9 and 10 stand rejected under 35 U.S.C. §103(a) over Dettling et al. in view of Chi and/or van Ommering in view of Mercuri '336 and further in view of Selover, Jr. et al.

As a first point, the varied claim rejections made citing various combinations of several unrelated references illustrates the impermissible hindsight reconstruction of the claimed invention, by picking and choosing among individual elements of the reference disclosure, without any and showing of how the skilled artisan would be motivated to make such choices.

In any event, the cited references do not suggest the inventions of any of the rejected claims. More particularly, Dettling et al. proposes a porous structure upon which an insulating, thermoplastic sealing material is "placed" saturated in and sealed and glued while hot pressing together during the duration of "setting" the resin. For example, carbon is used and bonding pressures must be limited; as specified by Dettling et al.:

The pressure applied to the two carbon plates 402 and 404 by press 410 must be great enough to force the two opposite surfaces of the plates together into intimate contact but must not be so great as to crush the plate material. In using RVC for plates 402 and 404, the pressure was lowered to approximately 200 psi since RVC material is very brittle and may crack at higher pressures. This may lead to a reduction in electrical conductivity when RVC is used since the points of contact on the adjoining surfaces would be fewer. In using nettled-felt plate material, a pressure of about 1260 psi was used.

Thus, Dettling et al. is hot pressed together during fusion and cooled under load.

Contrariwise, the inventive process involves the use of a flexible graphite material "saturated" with a thermosetting resin and it is actually formed into the necessary shape, not brought to the process in a set shape and "glued" together. The inventive material may be hot pressed to bring the parts together but is cured off line.

The reference to Chi is not fully understood; the patent references a convenient way to assemble a few cells and a gas cooling plate so that one

could remove defective cells – each cell in the assembly is glued together by a glue that can be separated easily and the patented invention seems to be that the “short stack” is held together by a high strength adhesive cast into a channel (holes through the stack) perpendicular to the plates to bind the cells and top and bottom cooling plates into an assembly. Indeed, it appears that a bolt would work better and come apart more easily if one needed to change a defective cell.

On the other hand, what is being assembled in the method of the present invention is a bipolar plate of the cell, not the cell itself, and it is the intention that these plates could not be disassembled. The mirror image embossments in the inventive plates are for the purpose of alignment (sealing engagement, line 26 page 17) and increased seal area. To complete the seal no external adhesive, gaskets or binders are required. The assembled bipolar plate is simply heated to produce the seal. Therefore, the seal of the bipolar plates of the rejected claims is achieved by material from within the relatively homogenous adjacent oxidant and fuel plates to result in a relatively homogenous and inseparable bipolar plate.

Van Ommering uses a “V” tongue and groove as the seal by selecting hard and softer materials for the two plates and “bashing” one into the other, nothing else. It is believed that the van Ommering structure would not be

capable of sealing gases. Though the patent does indicate that the tongue and groove will help alignment, the reference is to making fuel cell stacks, not inseparable bipolar plates.

Since these three patents form the backbone of the rejections under 35 U.S.C. §103(a), the rejections must fall since the references do not teach or even remotely suggest the claimed inventions, even if combined in the manner of the Office Action. Accordingly, the rejections of all claims 1-14 and 17-20 under 35 U.S.C. §103(a) should be withdrawn.

Double Patenting

The claims of the above-captioned application also stand provisionally rejected under double double patenting over copending application 10/185,085, filed June 28, 2002. This cited application is a continuation-in-part of the above-captioned application. Since it is believed that this application will issue prior to the cited application, the double patenting rejections of the claims of this application are moot and should be withdrawn.

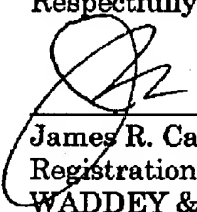
Conclusion

Based on the foregoing amendments and remarks, it is believed that all claims 1-14 and 17-20 of the above-captioned application are not in condition for allowance. Such action is earnestly sought. If there remains any matter

which prevents the allowance of any of these claims, the Examiner is requested to call the undersigned "collect" at 615.242.2400 to arrange for an interview which may expedite prosecution.

The Commissioner is authorized to charge any deficiency or credit any overpayment associated with the filing of this Response to Deposit Account 50-1202.

Respectfully submitted,



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